

WHAT WE CLAIM ARE:

1. A semiconductor device, comprising a V-groove having V-shaped cross-section on a semiconductor substrate or on an epitaxial growth layer grown on a semiconductor substrate, and an active layer is provided only at the bottom of said V-groove.

2. A semiconductor device according to Claim 1, wherein said active layer is sandwiched between a cladding layer inside the V-groove and a cladding layer outside the V-groove, both cladding layers being in contact with each other on a side of said V-groove.

3. A semiconductor device according to Claims 1 or 2, wherein said active layer has a quantum well structure.

4. A semiconductor device according to Claim 2, wherein energy gap on the cladding layer outside the V-groove is greater than energy gap on the cladding layer inside the V-groove.

5. A semiconductor device according to Claim 1, wherein an inclined surface of said V-groove is a {111} B face.

6. A semiconductor device according to Claim 2, wherein an optical guiding layer having a refractive index lower than that of said active layer and higher than that of the cladding layer inside the V-groove is formed between said active layer and said cladding layer inside said V-groove.

7. A semiconductor device according to Claim 6, wherein conductivity type of the cladding layer inside said